MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015/2016

BSE2414 – SOFTWARE ENGINEERING FUNDAMENTALS

(All sections / Groups)

29 FEBRUARY 2016

9.00 a.m - 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 3 pages with 5 Questions only.
2. Attempt **ALL** questions.
3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

(a) Briefly describe the pros and cons between the waterfall model, V-model and spiral model.

(6 marks)

(b) Briefly describe the THREE possible techniques which can be used for requirements discovery.

(3 marks)

(c) Identify any of the FIVE agile practices of Extreme Programming (XP).

(5 marks)

(d) Explain the THREE key roles and responsibilities of the Scrum.

(6 marks)

(Total: 20 Marks)

QUESTION 2

(a) Table I summarizes the task breakdown of a software production with the estimated durations and dependencies of each task. Sketch a network activity diagram which is corresponding to the information in Table I. After that, please identify the critical path in the diagram.

Table I

Task	Duration (days)	Dependencies
A	3	-
B	5	-
C	7	B
D	2	A
E	5	C, F
F	3	B
G	6	D, E

(10 marks)

(b) John is a project manager who has recently won a project bid for his company to develop an E-learning platform for a private higher learning institution in Malaysia. John and his team have worked out an initial architecture design for the system after gathering all the requirements from the client and derived all the essential parameters in order to estimate the effort to be invested in this project. John has estimated a total of 150,000 lines of source code is to be written for this project. Please help John to calculate the effort (person-months) required based on the given information in Table II if the post-architecture model is considered.

Continued .....

Table II

Scale Factor	Point Scale
Precedentedness	3
Development flexibility	3
Architecture/risk resolution	4
Team cohesion	4
Process maturity	3
Cost Driver	**Multiplier**
Reliability	1.25
Complexity	0.78
Memory constraint	1.15
Schedule	1
Tool use	1.3

(10 marks)

(Total: 20 Marks)

QUESTION 3

(a) Briefly describe the FOUR activities that are fundamental to all the software engineering processes.

(8 marks)

(b) Discuss why is the software architecture design important?

(4 marks)

(c) Briefly explain the following user testing stages: (i) *alpha testing*, (ii) *beta testing* and (iii) *acceptance testing*.

(6 marks)

(d) Briefly discuss the importance of beta testing.

(2 marks)

(Total: 20 Marks)

Continued .....

QUESTION 4

(a) Draw a UML use case diagram to show the possible interactions between a user and a microwave oven (see Figure 1).

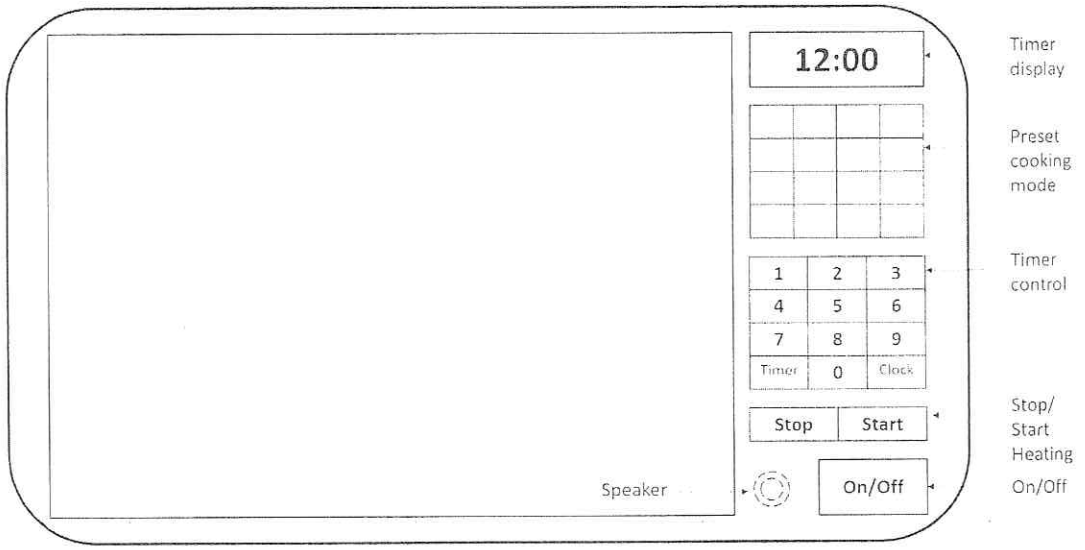

Figure 1

(10 marks)

(b) Draw a UML activity diagram to show the procedural flow of using a microwave oven (see Figure 1) to cook or heat food (assume that the power is turned on).

(10 marks)

(Total: 20 Marks)

QUESTION 5

(a) Please suggest appropriate objects that represent the microwave oven system (see Figure 1).

(10 marks)

(b) Briefly explain TWO principle characteristics of the object-oriented design. You may use examples or diagrams to aid your description.

(6 marks)

(c) Briefly discuss why it is important to perform software verification and validation. What are the differences between software verification and validation?

(4 marks)

(Total: 20 Marks)

End of Page